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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RYMAN, DANIEL J

ART UNIT	PAPER NUMBER
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2616

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,955

Applicant(s)

AVIELY ET AL.

Examiner

Daniel J. Ryman

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-20 and 59-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 62 and 63 is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-20 and 59-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Response, filed 7/24/2006, with respect to claims 6, 62, and 63 have been fully considered and are persuasive. The rejection of claim 6 has been withdrawn.

2. Applicant's arguments filed 3/23/2006 have been fully considered but they are not persuasive regarding claims 1, 17, and 59 and their respective dependent claims. On pages 7-8 of the Response, Applicant asserts that Rusu fails to disclose "a monitoring rate that is responsive to a difference between the buffer behavior pattern to a predefined buffer behavior pattern."

Examiner, respectfully, disagrees. Rusu discloses obtaining queue increase/decrease information at a programmable time interval (col. 8, lines 49-52; col. 8, lines 3-6; and col. 9, lines 1-4) in order to allow a system to compensate and adapt to different rates by shortening (or lengthening) the time interval to gain more frequent (or less frequent) samples to permit quicker adjustments (or slower adjustments) (col. 7, lines 60-64). It is implicit that the system will make quicker adjustments by shortening the monitoring rate when the buffer length is rapidly changing and that the system will make slow adjustments by lengthening the monitoring rate when the buffer length is static or only slowly changing. In order to accomplish this, the system must be able to determine how rapidly the buffer length is changing, where such a determination requires a comparison between a predetermined "buffer behavior pattern" with a current "buffer behavior pattern." Simply, without such a comparison, the system cannot determine how the buffer length is changing and therefore the system will not be able to determine whether to increase or decrease the monitoring rate. As such, Examiner maintains that Rusu teaches that the monitoring

Art Unit: 2616

rate is responsive to a difference between a current buffer behavior pattern to a predefined buffer behavior pattern.

3. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as outlined in the previous Office Action and below, Rusu teaches having a programmable time interval in order to allow a system to compensate and adapt to changes in the system by shortening (or lengthening) the time interval to gain more frequent (or less frequent) samples to permit quicker adjustments (or slower adjustments) (Rusu: col. 7, lines 60-64). Thus, one of ordinary skill in the art at the time of the invention would have been motivated to have an adjustable monitoring rate in order to permit the system to adapt to changes in the system by setting the monitoring rate to an appropriate level for the current conditions being experienced by the system.

4. For the above reasons, Examiner maintains that claims 1-4, 7-20, and 59-61 are obvious in view of the cited prior art.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2616

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 7-17 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itakura et al. (USPN 5,901,149), of record, in view of Rusu et al. (USPN 6,141,323), of record.

7. Regarding claims 1, 17, and 59, Itakura discloses a system and method for compensating for timing violations of time restricted data being transmitted over a bursty communication channel (col. 2, lines 17-31), the system comprising: a retriever (ref. 11), coupled to a buffer (ref. 41), for retrieving the time restricted data from the buffer, at a retrieval rate (read-out rate) (col. 4, lines 1-21); a buffer level monitor (ref. 43), coupled to the buffer, for monitoring the level of time restricted data in the buffer at a monitoring rate (col. 4, lines 1-21); and a controller (ref. 55) coupled to the buffer level monitor and to the retriever, for setting the retrieval rate (col. 4, lines 1-21; col. 7, lines 20-31; and col. 15, lines 1-13), wherein the retrieval rate is responsive to a difference between the buffer behavior pattern and a predefined buffer behavior pattern (col. 4, lines 1-21, where the read-out rate is increased when the storage amount is larger than a predetermined reference value).

Itakura does not expressly disclose that the controller sets the monitoring rate, wherein the monitoring rate is responsive to a difference between the buffer behavior pattern to a predefined buffer behavior pattern. Rusu teaches, in a system for adjusting queue length, obtaining queue increase/decrease information at a programmable time interval (col. 8, lines 49-52; col. 8, lines 3-6; and col. 9, lines 1-4) in order to allow a system to compensate and adapt to different rates by shortening (or lengthening) the time interval to gain more frequent (or less frequent) samples to permit quicker adjustments (or slower adjustments) (col. 7, lines 60-64). It

Art Unit: 2616

is implicit that the system will make quicker adjustments by shortening the monitoring rate when the buffer length is rapidly changing and that the system will make slow adjustments by lengthening the monitoring rate when the buffer length is static or only slowly changing. Thus, it is also implicit that a predetermined "buffer behavior pattern" is required in order to allow the system to make a comparison between the current "buffer behavior pattern" and the predetermined "buffer behavior pattern" such that the system can decide whether to increase or decrease the monitoring rate. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the controller set the monitoring rate in order to allow a system to compensate and adapt to different rates by shortening (or lengthening) the time interval to gain more frequent (or less frequent) samples to permit quicker adjustments (or slower adjustments). In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the monitoring rate responsive to a difference between the buffer behavior pattern to a predefined buffer behavior pattern in order to permit the system to determine when to increase and decrease the monitoring rate.

8. Regarding claim 2, Itakura in view of Rusu discloses that the controller sets the retrieval rate according to the level of the time-restricted data in the buffer (Itakura: col. 4, lines 1-21).

Itakura in view of Rusu suggests that the controller sets the monitoring rate according to the level of the time-restricted data in the buffer (Itakura: col. 4, lines 1-21 and Rusu: col. 7, lines 60-64 and col. 8, lines 49-52).

9. Regarding claim 3, Itakura in view of Rusu discloses that the retrieval rate is increased when the difference between the level of the time restricted data in the buffer and a predefined threshold level exceeds a predefined difference threshold (Itakura: col. 4, lines 1-21).

Art Unit: 2616

10. Regarding claim 4, Itakura in view of Rusu discloses that the retrieval rate being responsive to the difference between the level of the time restricted data in the buffer and a predefined threshold level (Itakura: col. 4, lines 1-21).

11. Regarding claim 7, Itakura in view of Rusu suggests that the controller is configured to change the monitoring rate and the retrieval rate to compensate for jitter included in the time-restricted data (Itakura: col. 2, lines 17-31 and col. 4, lines 1-21 and Rusu: col. 7, lines 60-64 and col. 8, lines 49-52).

12. Regarding claim 8, Itakura in view of Rusu discloses that the removal interval is responsive to a current bit rate of the time-restricted data (Itakura: col. 4, lines 1-21).

13. Regarding claim 9, Itakura in view of Rusu suggests that the controller sets the monitoring rate in response to the level of jitter included in the time restricted data (Itakura: col. 2, lines 17-31 and col. 4, lines 1-21 and Rusu: col. 7, lines 60-64 and col. 8, lines 49-52).

14. Regarding claim 10, Itakura in view of Rusu suggests that the monitoring rate and the retrieval rate are set in view of a statistical analysis of the level of time restricted data in the buffer (Itakura: col. 2, lines 17-31 and col. 4, lines 1-21 and Rusu: col. 7, lines 60-64; col. 8, lines 3-6; and col. 8, lines 49-52) where Rusu teaches changing the monitoring rate according to current and historical conditions (col. 8, lines 3-6) which suggests using statistical analyses.

15. Regarding claim 11, Itakura in view of Rusu discloses that the controller is configured to set the monitoring rate in response to changes in the bit rate of arriving time-restricted data (Rusu: col. 7, lines 60-64 and col. 8, lines 49-52).

16. Regarding claim 12, Itakura in view of Rusu discloses that the controller modifies the retrieval rate, when said controller detects that the behavior of said current level exceeds a given behavior and adjusts said retrieval rate accordingly (Itakura: col. 4, lines 1-21).

17. Regarding claim 13, Itakura in view of Rusu does not expressly disclose that said buffer is a first in first out buffer; however, Examiner takes official notice that FIFO buffers are well known in the art. Thus, it would have been obvious to use a FIFO buffer since these buffers are well known in the art.

18. Regarding claim 14, Itakura in view of Rusu discloses that the time restricted data is in a form of MPEG Transport packet (Itakura: col. 1, lines 6-15).

19. Regarding claim 15, Itakura in view of Rusu does not expressly disclose that the type of said bursty communication channel is selected from the list consisting of: Ethernet; Fast Ethernet; Gigabit Ethernet; TCP/IP; RTP; and UDP/IP. However, Examiner takes official notice that TCP/IP is a well-known protocol. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use TCP/IP since it is a well-known protocol.

20. Regarding claim 16, Itakura in view of Rusu discloses that the timing violations are selected from the group consisting of: delay; and jitter (Itakura: col. 2, lines 17-31).

21. Regarding claim 60, Itakura in view of Rusu discloses a step of setting said monitoring time after said step of increasing, after said step of decreasing, and when said buffer level is equal to said threshold (Itakura: col. 2, lines 17-31 and col. 4, lines 1-21 and Rusu: col. 7, lines 60-64 and col. 8, lines 49-52) where the monitoring level is changed according to an interval such that these changes will occur after said step of increasing, after said step of decreasing, and

Art Unit: 2616

when said buffer level is equal to said threshold since the retrieval rate will constantly be changing.

22. Regarding claim 61, Itakura in view of Rusu implicitly discloses a preliminary step of detecting if said buffer level exceeds a predetermined zero level (Itakura: col. 2, lines 17-31 and col. 4, lines 1-21 and Rusu: col. 7, lines 60-64 and col. 8, lines 49-52) where the system implicitly checks to determine if there is any data in the buffer before it makes a determination if the amount of data in the buffer exceeds a threshold.

23. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itakura et al. (USPN 5,901,149), of record, in view of Rusu et al. (USPN 6,141,323), of record, as applied to claim 15 above, and further in view of Applicant's admitted prior art.

24. Regarding claim 18, Itakura in view of Rusu does not expressly disclose at least one entity selected from the group consisting of a decapsulator, connected to said buffer, wherein said decapsulator extracts said time restricted data from bursty channel format packets and wherein said decapsulator provides said time restricted data to said buffer; a receiving end communication interface, connected to said decapsulator, wherein said receiving end communication interface receives said bursty channel format packets from said bursty communication channel, and wherein said receiving end communication interface provides said bursty channel format packets to said decapsulator; a transmitting end communication interface, for transmitting said bursty channel format packets to said receiving end communication interface over said bursty communication channel; an encapsulator, connected to said transmitting end communication interface, for encapsulating said time restricted data in said bursty channel format packets; a time restricted data source, connected to said encapsulator; and

Art Unit: 2616

a communication unit, coupled to the retriever. However, Applicant discloses as prior art that it is well known to encapsulate and decapsulate packets in order to transport the MPEG packets over a network (para. 2 to para. 11). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have at least one entity selected from the group consisting of a decapsulator, connected to said buffer, wherein said decapsulator extracts said time restricted data from bursty channel format packets and wherein said decapsulator provides said time restricted data to said buffer; a receiving end communication interface, connected to said decapsulator, wherein said receiving end communication interface receives said bursty channel format packets from said bursty communication channel, and wherein said receiving end communication interface provides said bursty channel format packets to said decapsulator; a transmitting end communication interface, for transmitting said bursty channel format packets to said receiving end communication interface over said bursty communication channel; an encapsulator, connected to said transmitting end communication interface, for encapsulating said time restricted data in said bursty channel format packets; a time restricted data source, connected to said encapsulator; and a communication unit, coupled to the retriever in order to transport MPEG packets over a network.

25. Regarding claim 19, Itakura in view of Rusu in further view of Applicant discloses that said retriever is further connected to a communication unit selected from the list consisting of: a decoder, for decoding said time restricted data; a transmitter, for transmitting said time restricted data to a remote receiver; and a multiplexer, for multiplexing said time restricted data (Applicant: para. 2 to para. 11).

Art Unit: 2616

26. Regarding claim 20, Itakura in view of Rusu in further view of Applicant discloses that said multiplexer is further connected to said transmitter, and wherein said transmitter transmits multiplexed time restricted data received from said multiplexer (Itakura: col. 1, lines 19-32 and Applicant: para. 2 to para. 11).

Allowable Subject Matter

27. Claims 6, 62, and 63 are allowed. While prior art suggests increasing the monitoring rate by shortening the time interval when the level of data in the buffer is changing rapidly in order to allow for quicker adjustments and decreasing the monitoring rate by lengthening the time interval when the level of data in the buffer is static or changing slowly (Rusu: col. 7, lines 60-64), the prior art does not disclose how sensitive the change in monitoring rate is to low frequency changes in the level of data in the buffer. Therefore, the prior art does not disclose or fairly suggest making the monitoring rate responsive to low frequency changes in the level of time restricted data in the buffer.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Powell (USPN 6,111,878) see col. 1, lines 60-65; col. 2, lines 15-22; and col. 2, lines 33-41 which discloses varying the parameters of a filter according to the fill level of a buffer in order to avoid buffer overflow or underflow.

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 2616

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJR

Daniel J Ryman
Examiner
Art Unit 2616



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